

## CLAIMS

1. Process for producing superconducting cable consisting of at least one elongated superconducting element, containing a cable core, and of a flexible tube enclosing the cable core, comprising the following steps:

- (a) the cable core is drawn continuously from a supply unit;
- (b) a metal strip is drawn continuously from a strip supply unit;
- (c) the metal strip is shaped continuously around the cable core to form a slotted tube; the longitudinal slot is welded; and the welded tube is then corrugated, the inside diameter of the corrugated tube being greater than the outside diameter of the cable core;
- (d) the superconducting cable consisting of the cable core and the corrugated tube is wound up on a cable drum, or at least one turn of the superconducting cable has been run; and
- (e) finally, the ends of the cable core are joined mechanically to the ends of the corrugated tube while the cable is on the cable drum or after at least one turn of the cable has been run.

2. Process according to Claim 1, characterized in that the forming of the metal strip into a tube or the corrugating of the welded metal tube is carried out in such a way that the cable core has an excess length  $\Delta l$  in the corrugated metal tube, this length being calculated by means of the formula  $\Delta l = (R - r) \Pi \times 2a$ , where  $R$  is the inside diameter of the corrugated tube,  $r$  is the outside diameter of the cable core, and  $a$  is the diameter of the turn.

3. Process according to Claim 1 or Claim 2, characterized in that the excess length  $\Delta l$  is

at least 0.25%.

4. Process according to one of Claims 1-3, characterized in that the cable core contains a high-temperature superconductor.